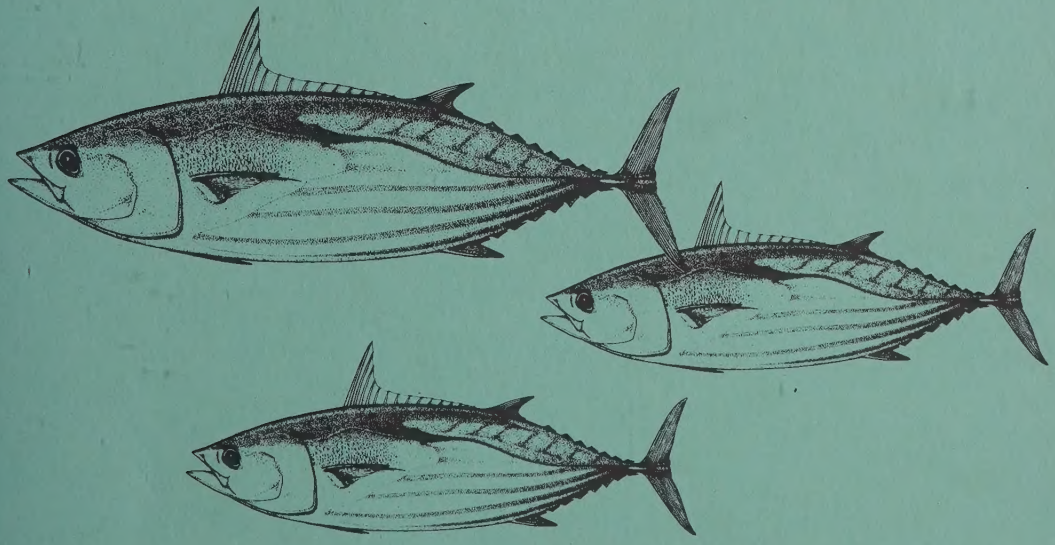
OCTOBER 1977
No. 10

FISHING INFORMATION

Southwest Fisheries Center-La Jolla, California



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U.S. DEPARTMENT OF COMMERCE
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SOUTHWEST FISHERIES CENTER
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FISHING INFORMATION

OCTOBER 1977 , No. 10

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PREFACE

This publication, Fishing Information, appears monthly and contains 1) fishery advisory information, 2) a narrative description of pertinent surface temperature conditions, 3) charts of winds and pressures for the eastern North Pacific, 4) charts of sea surface temperature for the North Pacific and eastern tropical Pacific, and 5) charts of subsurface temperature structure in the eastern North Pacific.

A supplement to Fishing Information appears at 15-day intervals throughout the year. It contains a chart of sea surface temperature (contoured at 2°F (1°C) intervals) from Baja California to Vancouver Island out to about 135°W. Special bulletins are published in conjunction with the 15-day sea surface temperature charts which include short-term projections of albacore distribution and locations of productive fishing areas, information on oceanographic and atmospheric conditions, and other information as is appropriate during the albacore fishing season.

The Secretary of Commerce has determined that the publication of this periodical is necessary in the transaction of the public business required by law of this Department.

Submitted for publication - November 28, 1977

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ENVIRONMENTAL CHARTS ANALYZED BY:

F. Miller (Figures 8 and 9)
J. Renner (Figures 1, 2, 3, 4, 5, 6, 7, and 15 day Supplement)

TECHNICAL EDITOR:
R. Allen
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J. Redhead at Langara Island Light; D.S. Robinson at Cape St. James Light;
L. Collins at Kains Island Light; I.G. McNeil, E.M. Chapman and M.V. Stewart at Amphitrite Point Light
Scripps Institution of Oceanography, La Jolla, California

Expendable bathythermograph and salinity observations are made by the mates and engineers of the *Hawaiian Queen* of the Matson Navigation Co. The data are processed under supervision of D.R. McLain at the NMFS Pacific Environmental Group, Monterey, California, using computer facilities of the Fleet Numerical Weather Central, Monterey. The project is partially supported by the National Science Foundation and the Office of Naval Research.

Sea Surface Temperature and Environmental Conditions

Forrest R. Miller

Eastern North Pacific

During October, sea surface temperatures (SST) normally decrease 1 to 2°C over most of the north Pacific Ocean. The rate of cooling is usually not uniform at this time of year, and varies according to the positions and intensities of the Aleutian low and subtropical high pressure systems. During the early winter season, there is normally frequent development of heavy weather fronts in the central Pacific north of 40°N. These frontal systems move rapidly eastward along the periphery of the Aleutian low (normally near 55°N, 150°W) with wide bands of heavy cloud cover, high winds and very rough seas. South of 35°N the subtropical high pressure system is normally associated with lighter winds and seas and less cloud cover than north of 40°N.

During October 1977, the subtropical high pressure system (Figure 2) remained south of 40°N most of the month with a monthly mean position and intensity similar to the 17-year (1961-1977) average conditions shown in Figure 1. The Aleutian low pressure center was centered near 55°N, 150°W with central pressures 8 to 10 millibars below normal (Figure 2). Sea level pressures were 2 to 4 millibars below normal along the northwest coast of North America, in contrast to October 1976 when surface pressures were 8 to 10 millibars above normal. During October 1976, the Aleutian low pressure center was located near 55°N, 165°W with central pressures of more than 16 millibars below normal. The very deep Aleutian low west of its normal position and the high pressure ridge over the U.S. northwest during October 1976 set the pattern for the long, dry winter of 1976-77 along the west coast of North America. In October 1977, the pressure patterns and associated surface winds over the eastern north Pacific were much closer to the normal pattern (Figure 1) than they were a year ago.

SST's were typical for October, with exceptions in the mid-latitudes from 40°N to 50°N and the subtropics south of 25°N and east of 150°W (Figure 5). A stronger than normal north Pacific ocean front developed from 40°N to 45°N between 130°W and 160°W (Figure 3) along the periphery of the Aleutian low, where high surface winds caused extensive mixing in the surface layers of the ocean. As a result, SST's were 1 to 2°C below normal in this region (Figure 5). Compared to October 1976, SST's from 40°N to 50°N and east of 160°W this year have been as much as 1°C colder in places (Figure 7). Along the U.S. west coast, SST's were slightly below normal and more than 1°C colder than in October 1976 south of 40°N (Figure 7). South of 22°N and east of 150°W, SST's averaged about 1°C above normal. This area of above normal SST's developed in August and September when the subtropical high pressure center was north and west of its normal position. East of 130°W and south of 30°N, the area covered by positive SST departures from normal has diminished since August. Also, in the area southwest of Baja California, SST's were significantly colder in October 1977 than in October 1976. Over a very large part of the eastern north Pacific, however, SST's were close to normal in October 1977 (Figure 5).

Western North Pacific

During October, most of Japan and the western Pacific Ocean from 20°N to 45°N was under the influence of a subtropical high pressure system south of 40°N. SST's were near normal over most areas south of 40°N (Figure 6) where relatively light winds and seas were associated with the high pressure system. Between 150°E and 170°E and south of 25°N, the negative SST departures (Figure 6) of more than 1°C were partially caused by heavy winds and seas generated by tropical storms moving northward from the tropics.

The north Pacific Ocean front was most pronounced between 40°N and 45°N in October (Figure 4). Positive SST departures from normal developed where SST contours bulged northward, and negative SST departures occurred where SST contours were compressed southward along the broad frontal boundary (Figure 6). However, over most of the northwest Pacific north of 40°N, SST's were much closer to normal than in August or September 1977, when SST's in that region were 1 to 2°C above normal. This occurred where the subtropical high pressure system expanded into the northwest Pacific during the summer season. Seasonal storm development has nearly depleted the summertime excess ocean heat supply over the north Pacific.

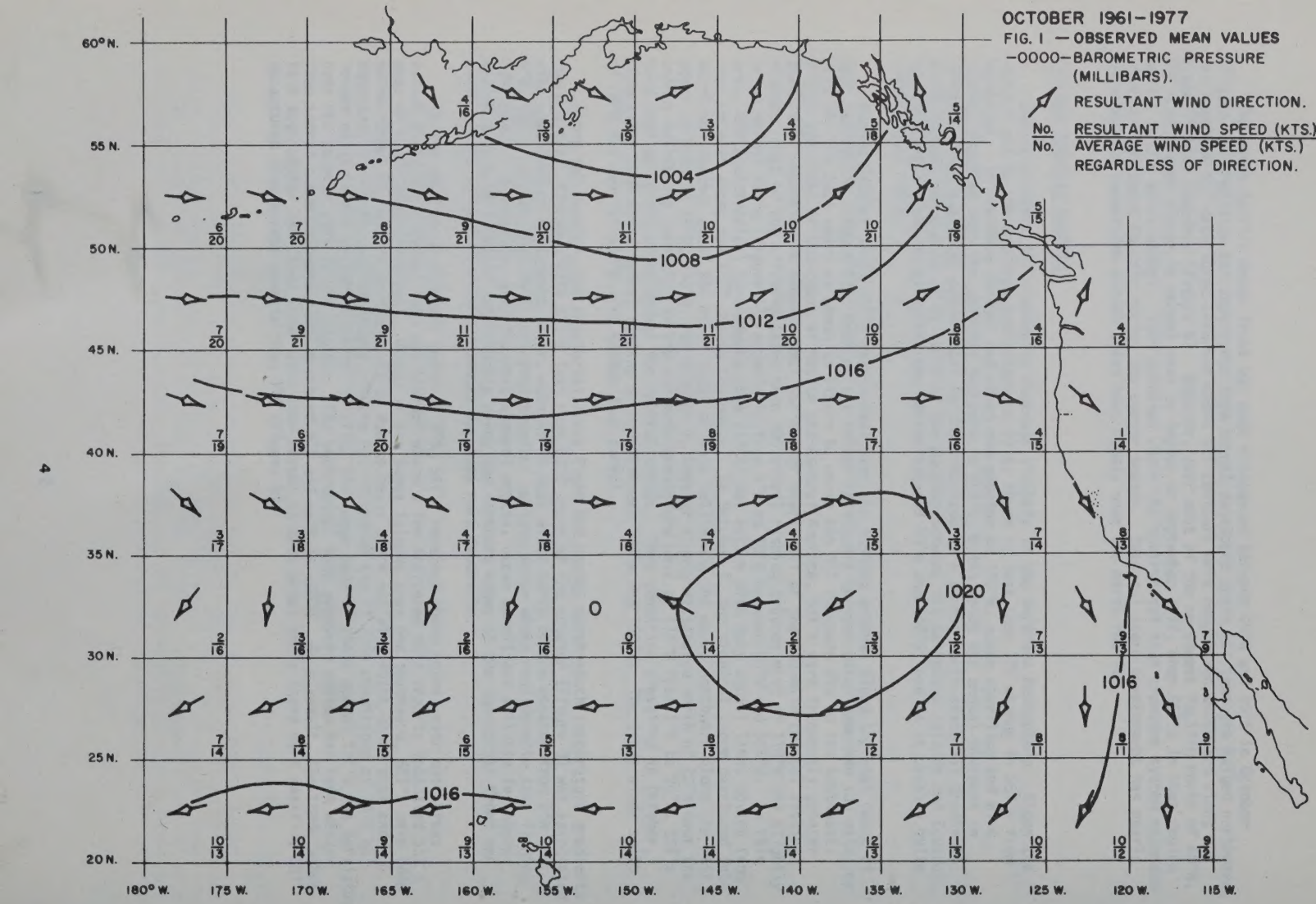
Eastern Tropical Pacific

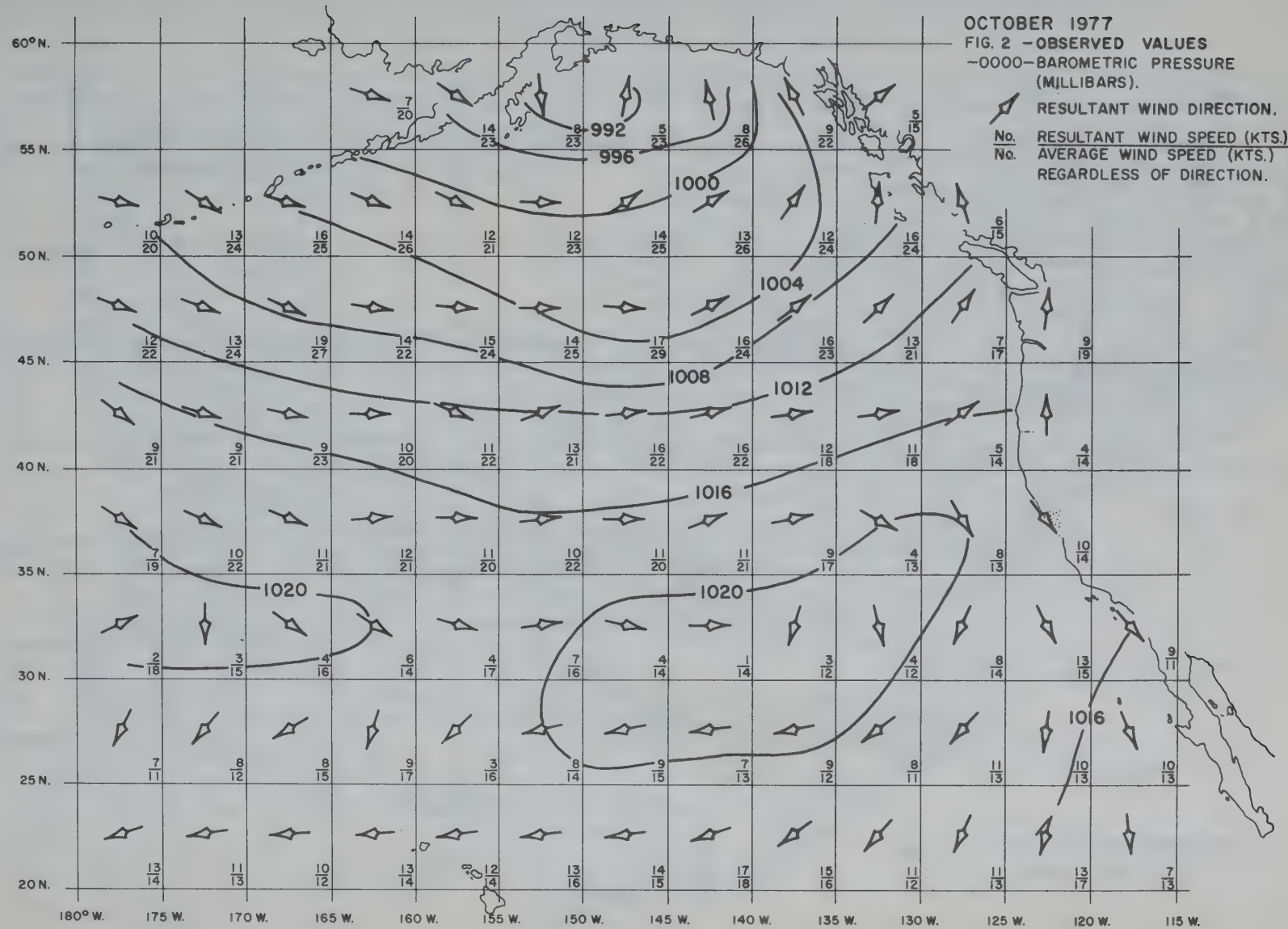
During October, SST's normally decrease slightly in the northern hemisphere. Along the equator and in the southern hemisphere to 20°S, there is less than 1°C change in SST's from September. In the Peru Current and along the equator to 150°W, ocean upwelling and wind mixing, combined with the seasonal decrease in SST's, bring about the annual minimums in October. The equatorial ocean front is characterized by a strong north-south SST gradient, which is most pronounced at or north of the equator between the Galápagos Islands and Ecuador. The equatorial front normally becomes weaker between 90°W and 140°W, and it is usually quite weak west of 140°W.

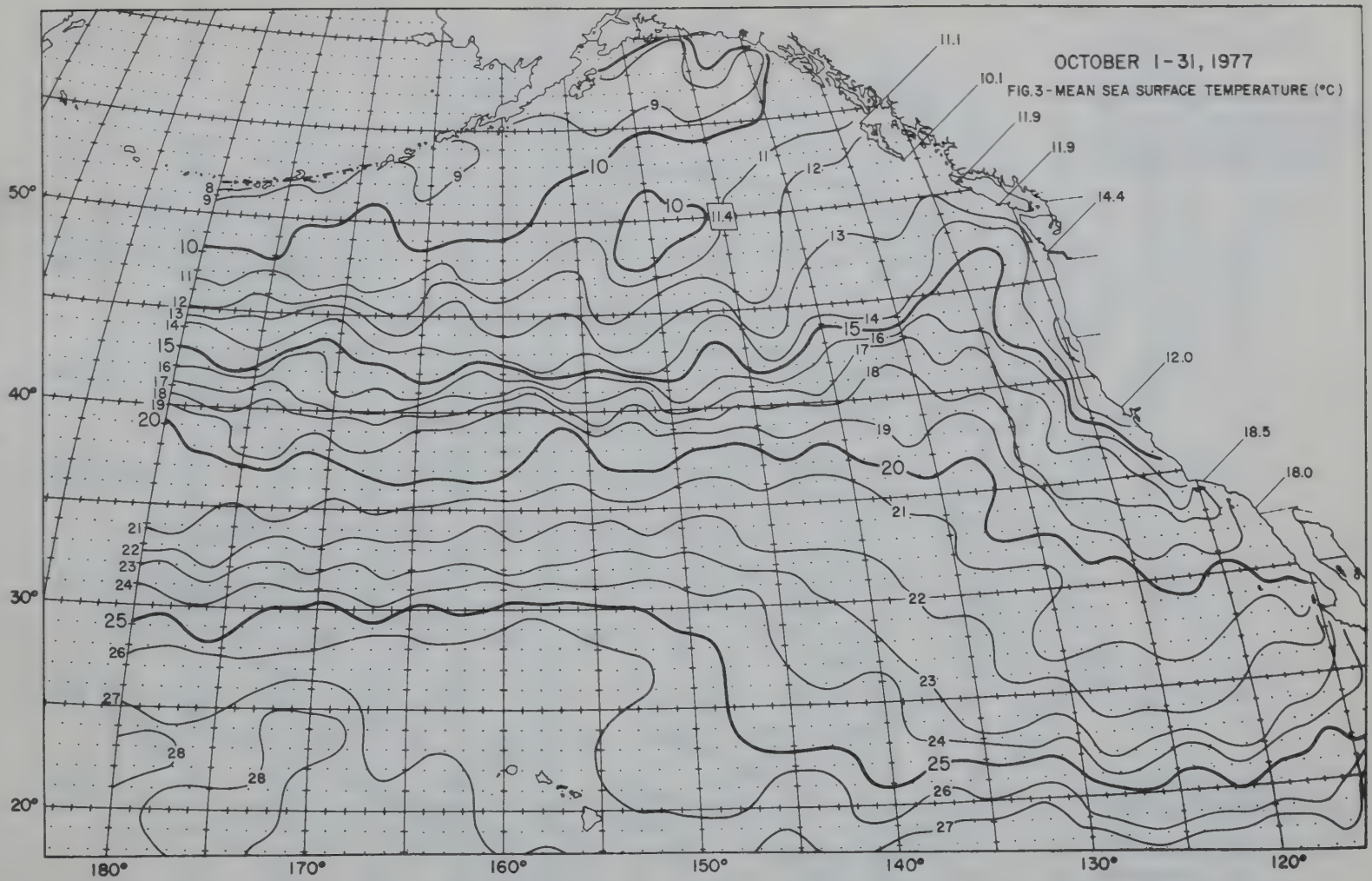
During October 1977, SST's were normal over the fishing grounds along the west coast of Baja California (Figure 9). Most of the colder California current water remained 100 miles or more off the Baja coast as shown in Figure 8, where the SST contours dip to the southeast. Within 200 miles of the coast of Mexico and Central America, SST's were frequently greater than 29°C, resulting in above normal SST's over nearly all of the 200-mile coastal fishing region. Most of the offshore (more than 200 miles) fishing grounds east of 110°W had slightly below normal SST's (Figure 9), especially from 5°N to 10°N between 85°W and 105°W. In this area, the Intertropical Convergence Zone (ITCZ) was active with many squall lines moving from east to west along the ITCZ during the month. On October 4, one tropical storm developed into hurricane Heather about 250 miles south of Baja California and moved northward along the west coast of Baja to 28°N, 116°W. On October 7, Heather slowly dissipated north of 28°N over the colder California Current. In the northern hemisphere west of 115°W from 5°N to 20°N, SST's have been up to 1°C above normal for several months. This condition prevailed in October, especially over the tropical fishing grounds between 120°W and 150°W. The trade winds south of 20°N and west of 120°W were weaker than normal.

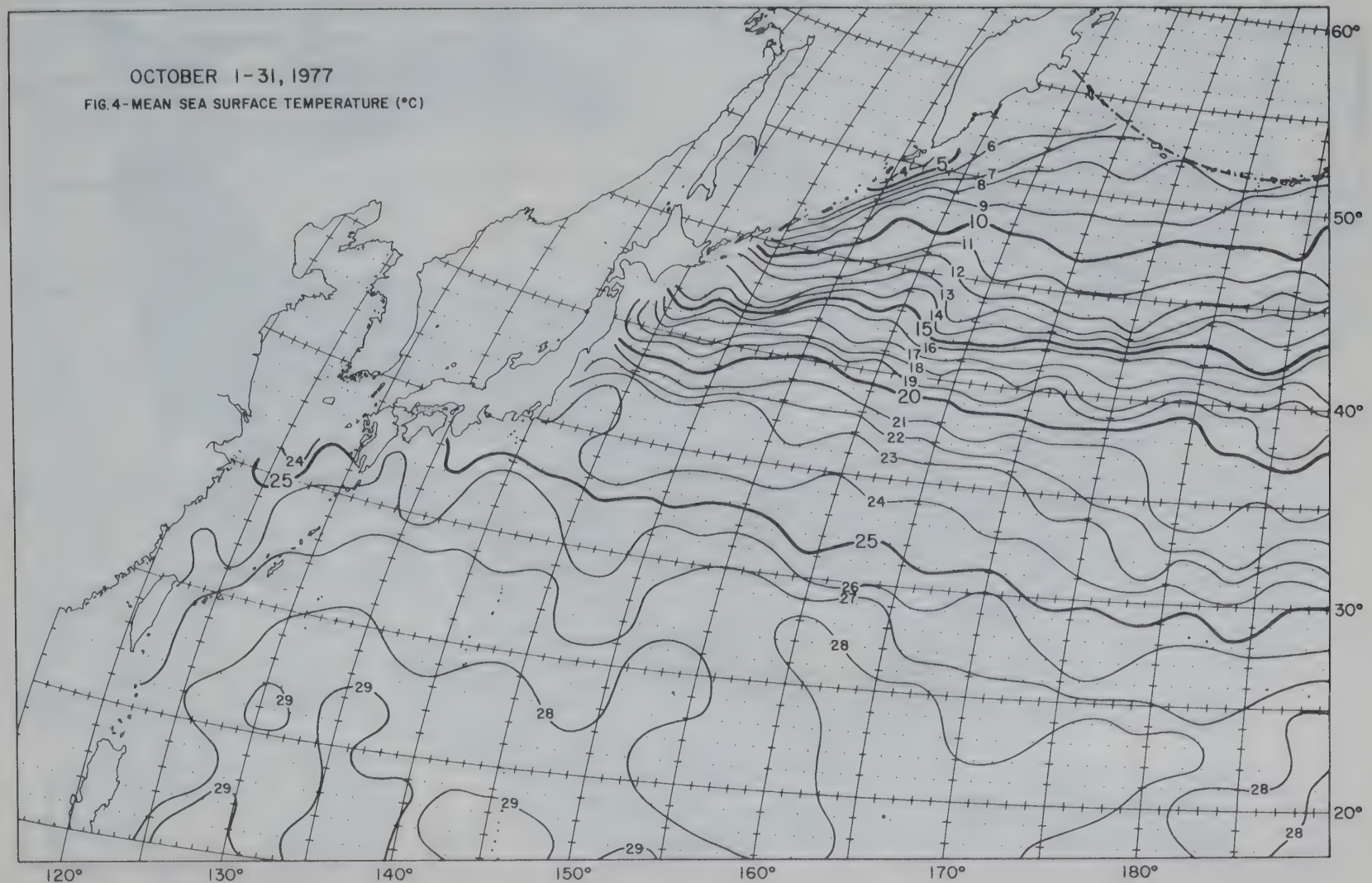
Along the equator, the equatorial ocean front had normal north-south temperature gradients for October. The area with SST's less than 23°C south of the equator (Figure 8) was associated with upwelling of subsurface water, whereas in most areas north of the equator from 2°N to 5°N, SST's greater than 25°C indicated tropical surface water where considerable tuna fishing took place. Apparently, over the past several months, ocean conditions suitable for aggregating tuna have improved sufficiently along the northern edges of the equatorial front and south of 5°N to make feeding conditions for tuna more favorable.

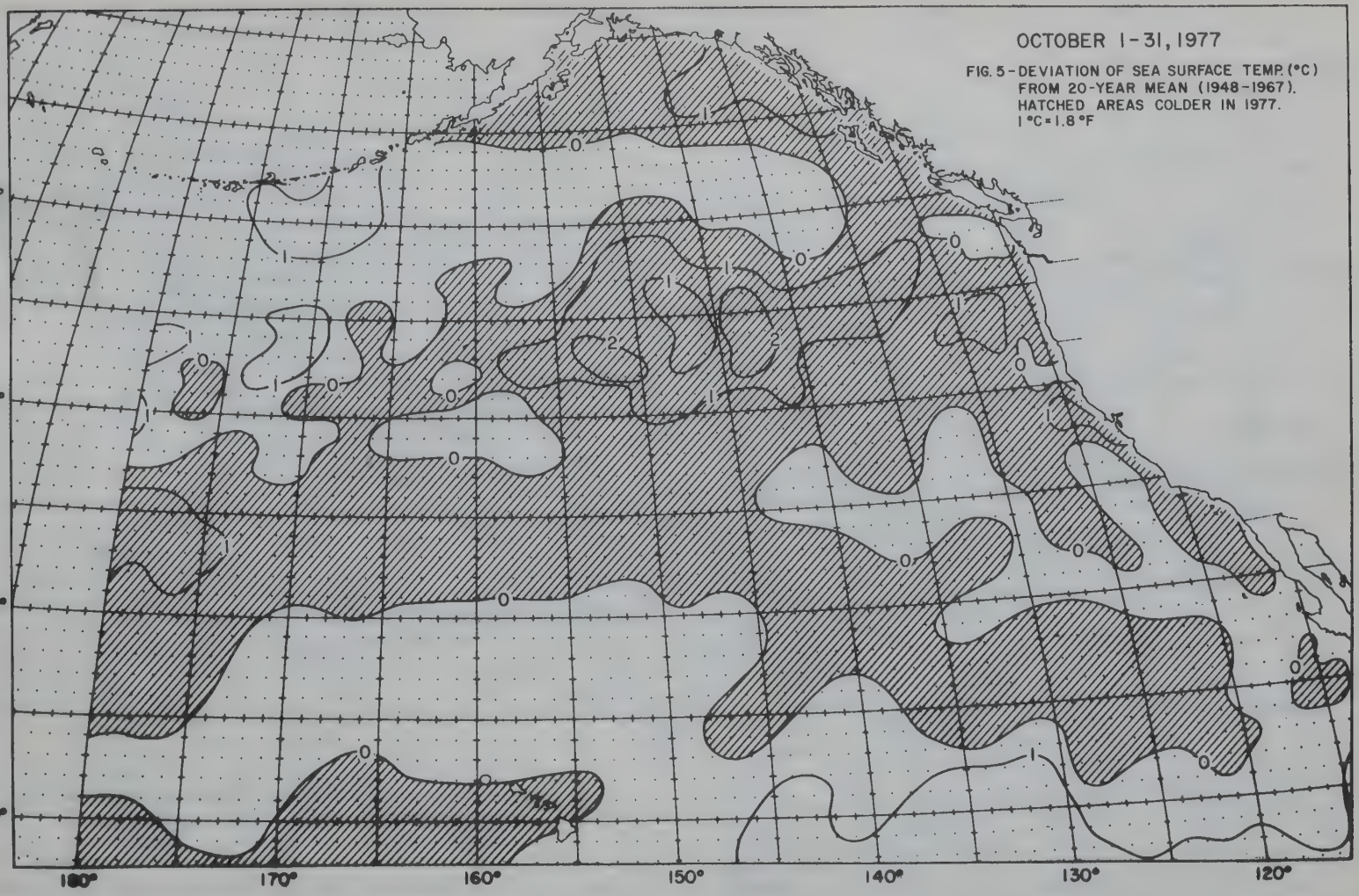
In the southern hemisphere south of 5°S, SST's remained above normal over most areas except along the coast of Peru and Ecuador where a few scattered ship reports indicated SST's near or slightly below normal. Also, in the Samoa Islands area and southward, SST's have been below normal during the southern winter due to heavy storm activity which moved east and equatorward from the mid-latitudes (Figure 9). Although the El Niño conditions of 1976 no longer exist in the eastern tropical Pacific, the large body of above normal SST's has persisted over the central part of the tropics. The subtropical high pressure system has been weaker than normal since September 1977 south of 5°S and east of 120°W. As a result, the trade winds have been weaker and cloud cover less than normal in most areas where there were positive SST departures from normal greater than 1°C (Figure 9).

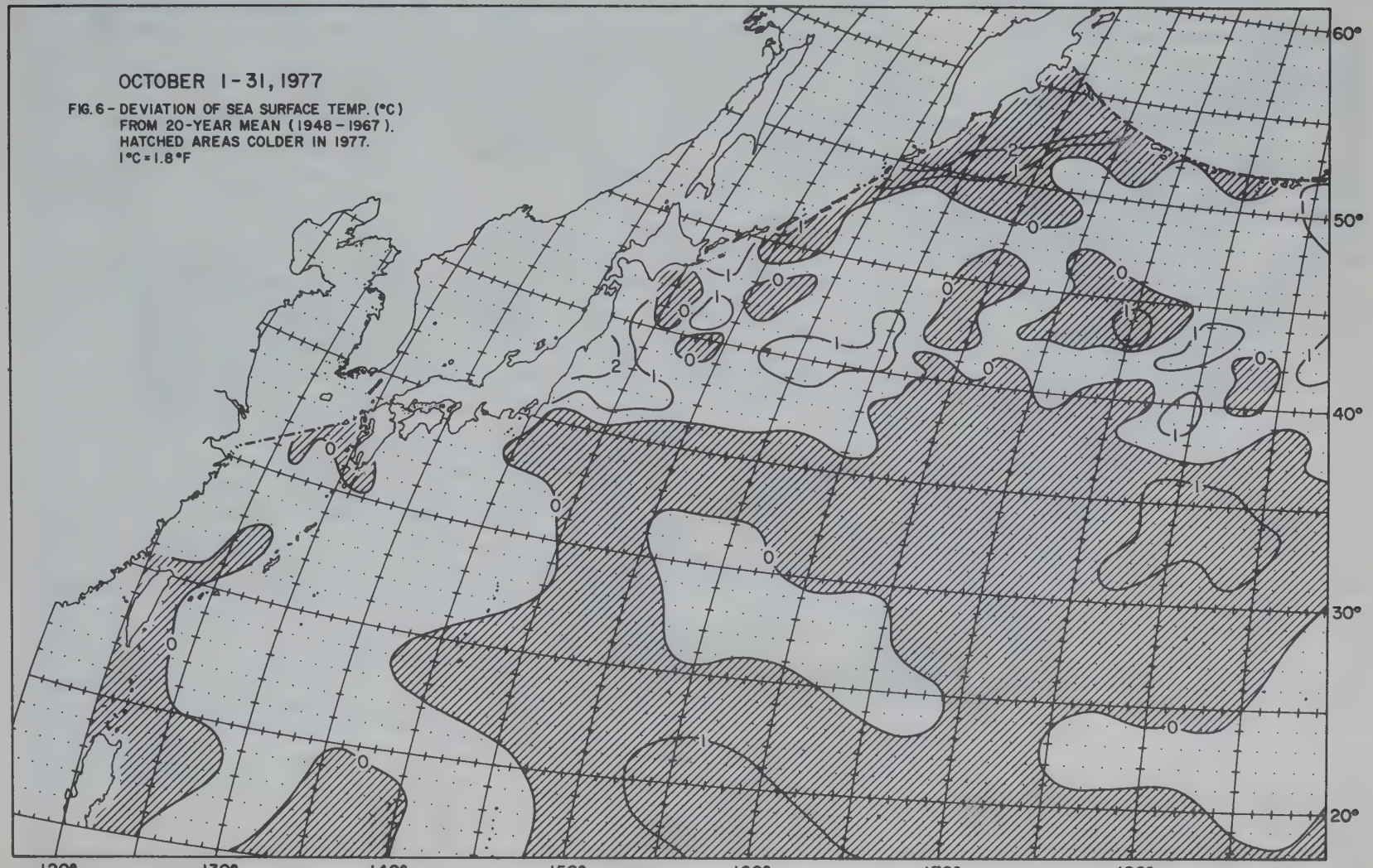

OCTOBER 1961-1977
FIG. 1 — OBSERVED MEAN VALUES
-0000- BAROMETRIC PRESSURE (MILLIBARS).
RESULTANT WIND DIRECTION.
No. RESULTANT WIND SPEED (KTS.)
No. AVERAGE WIND SPEED (KTS.) REGARDLESS OF DIRECTION.
1004
1008
1012
1016
1020
1016
1016
60° N.
55 N.
50 N.
45 N.
40 N.
35 N.
30 N.
25 N.
20 N.
180° W.
175 W.
170 W.
165 W.
160 W.
155 W.
150 W.
145 W.
140 W.
135 W.
130 W.
125 W.
120 W.
115 W.

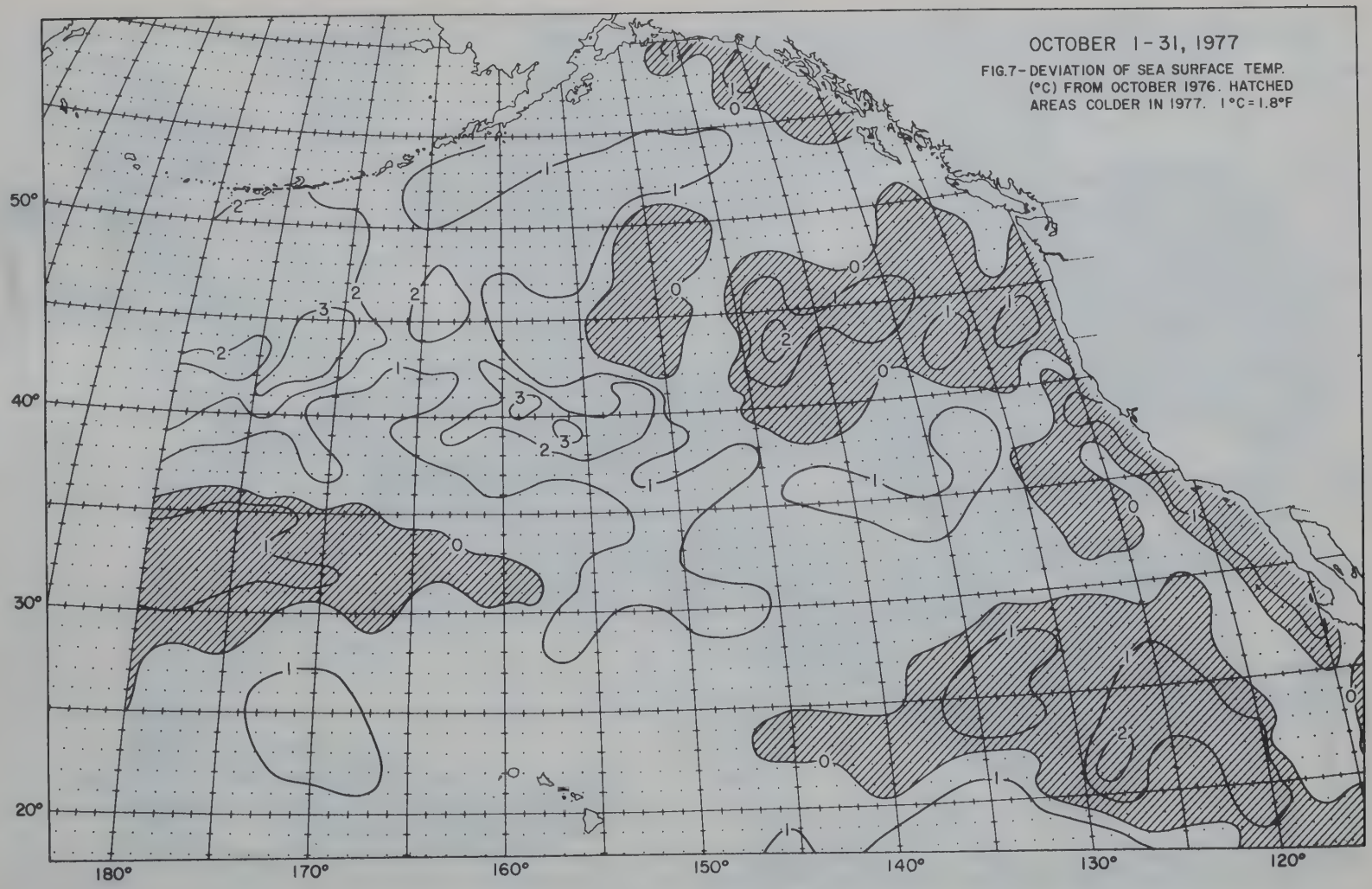

OCTOBER 1977
FIG. 2 -OBSERVED VALUES
-0000-BAROMETRIC PRESSURE (MILLIBARS).
RESULTANT WIND DIRECTION.
No. RESULTANT WIND SPEED (KTS.)
No. AVERAGE WIND SPEED (KTS.) REGARDLESS OF DIRECTION.
992
996
1000
1004
1008
1012
1016
1020
1020
1016
60° N.
55 N.
50 N.
45 N.
40 N.
35 N.
30 N.
25 N.
20 N.
180° W.
175 W.
170 W.
165 W.
160 W.
155 W.
150 W.
145 W.
140 W.
135 W.
130 W.
125 W.
120 W.
115 W.

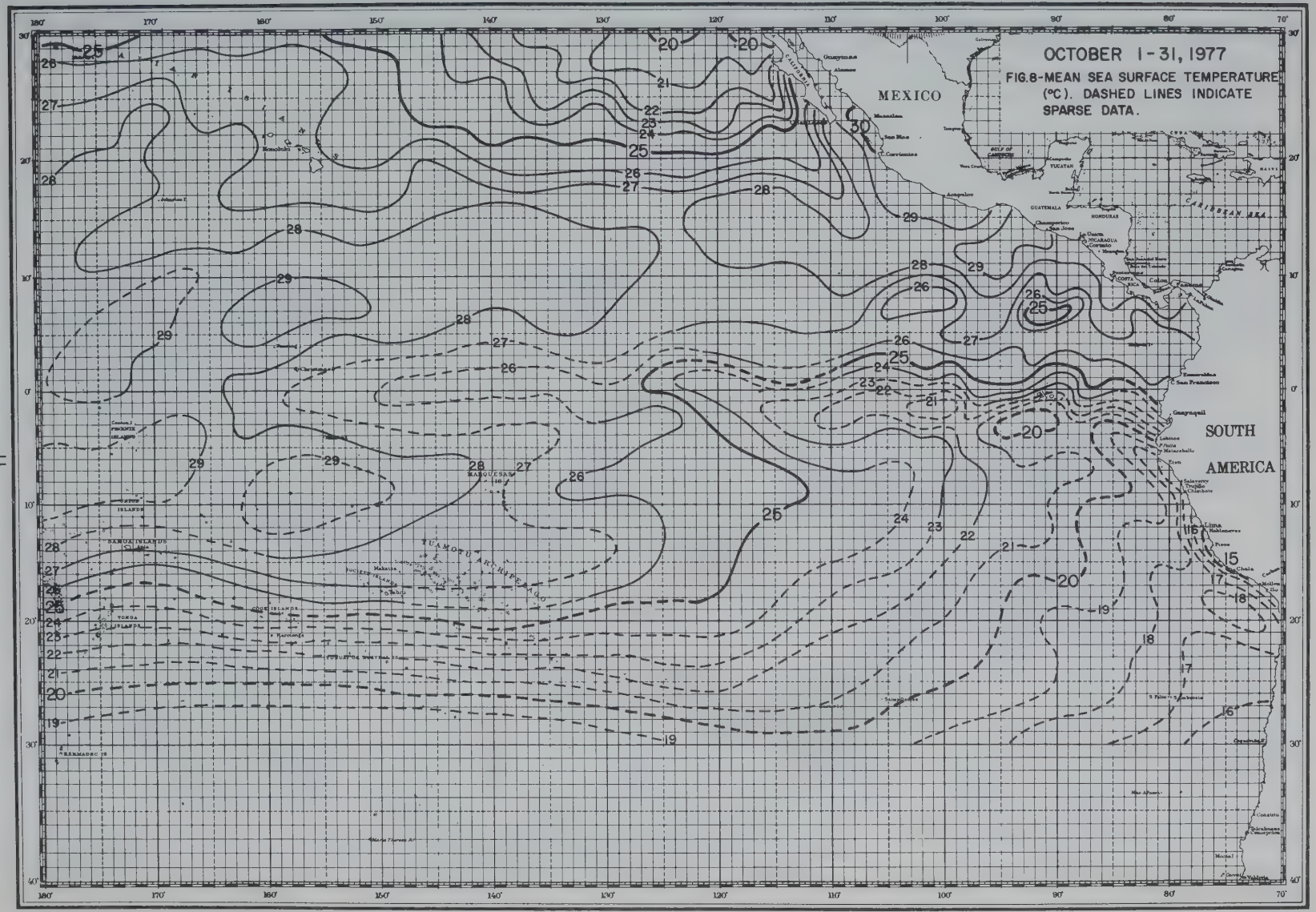

OCTOBER 1-31, 1977
FIG.3-MEAN SEA SURFACE TEMPERATURE (°C)
50°
40°
30°
20°
180°
170°
160°
150°
140°
130°
120°
11.1
10.1
11.9
11.9
14.4
11.4
12.0
18.5
18.0


OCTOBER 1-31, 1977
FIG.4-MEAN SEA SURFACE TEMPERATURE (°C)
60°
50°
40°
30°
20°
120°
130°
140°
150°
160°
170°
180°


OCTOBER 1-31, 1977
FIG. 5 - DEVIATION OF SEA SURFACE TEMP. (°C) FROM 20-YEAR MEAN (1948-1967). HATCHED AREAS COLDER IN 1977. 1°C = 1.8°F
50°
40°
30°
20°
180°
170°
160°
150°
140°
130°
120°


OCTOBER 1-31, 1977
FIG. 6 - DEVIATION OF SEA SURFACE TEMP. (°C) FROM 20-YEAR MEAN (1948-1967). HATCHED AREAS COLDER IN 1977.
1°C = 1.8°F
60°
50°
40°
30°
20°
120°
130°
140°
150°
160°
170°
180°


OCTOBER 1-31, 1977
FIG.7- DEVIATION OF SEA SURFACE TEMP. (°C) FROM OCTOBER 1976. HATCHED AREAS COLDER IN 1977. 1°C = 1.8°F
50°
40°
30°
20°
180°
170°
160°
150°
140°
130°
120°


OCTOBER 1-31, 1977
FIG.8-MEAN SEA SURFACE TEMPERATURE (°C). DASHED LINES INDICATE SPARSE DATA.
MEXICO
SOUTH AMERICA
CARIBBEAN SEA
GUATEMALA
HONDURAS
NICARAGUA
COSTA RICA
Honolulu
Acapulco
Guayaquil
TUAMOTU ARCHIPELAGO
BERMADEC IS

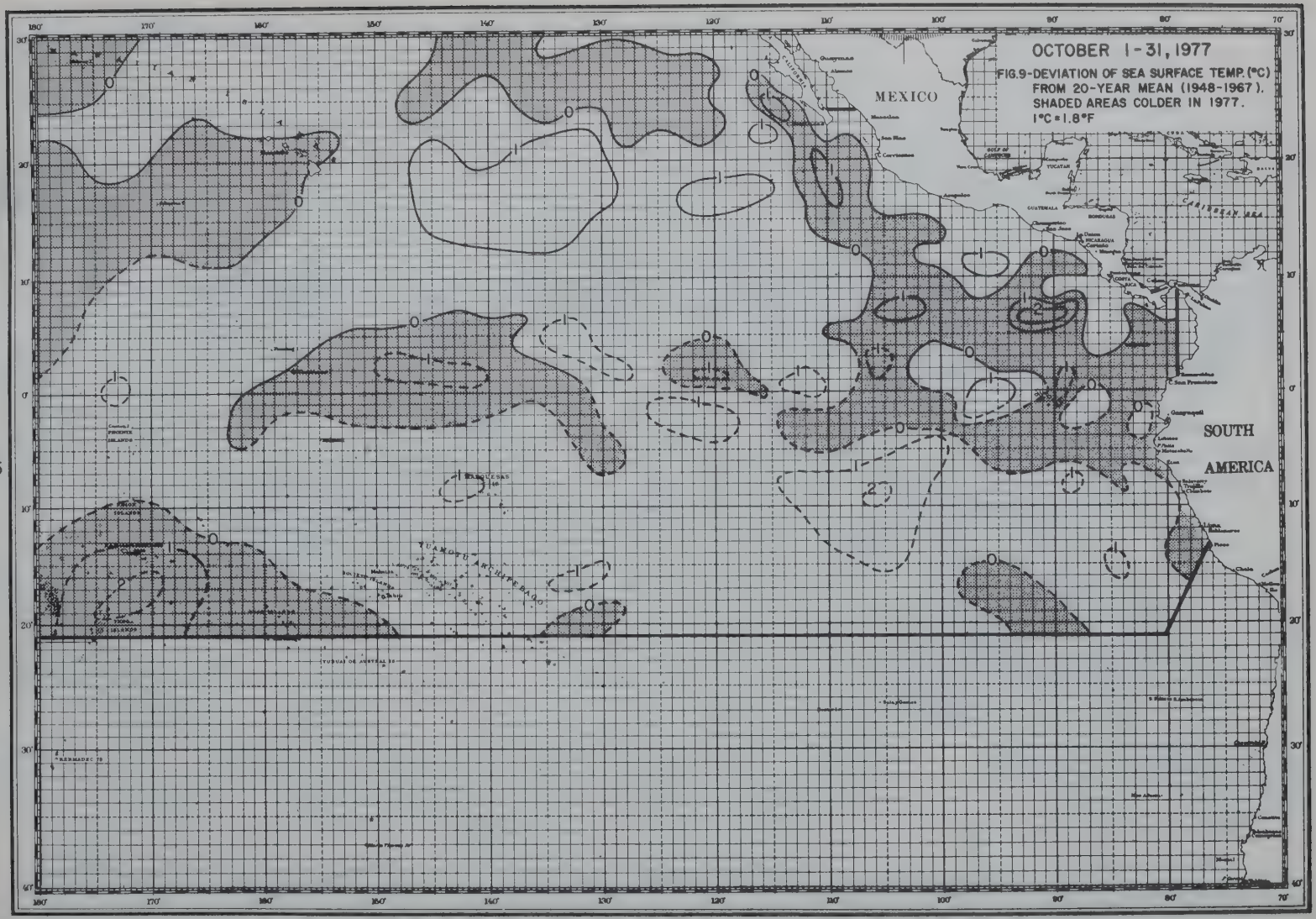
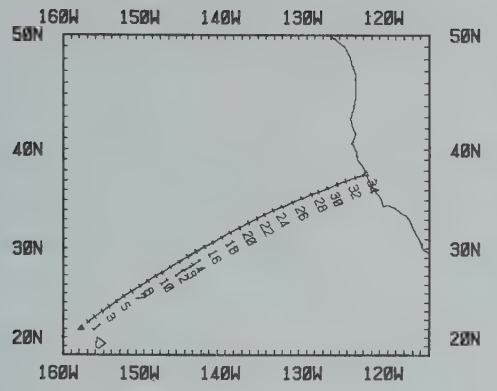
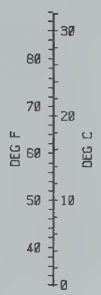

OCTOBER 1-31, 1977
FIG.9-DEVIATION OF SEA SURFACE TEMP.(°C) FROM 20-YEAR MEAN (1948-1967). SHADED AREAS COLDER IN 1977. 1°C = 1.8°F
MEXICO
SOUTH AMERICA
TUAMOTU ARCHIPELAGO
180° 170° 160° 150° 140° 130° 120° 110° 100° 90° 80° 70°
30° 20° 10° 0° 10° 20° 30° 40°

FIGURE 10





SHIP HAWAIIAN QUEEN

VOYAGE 212

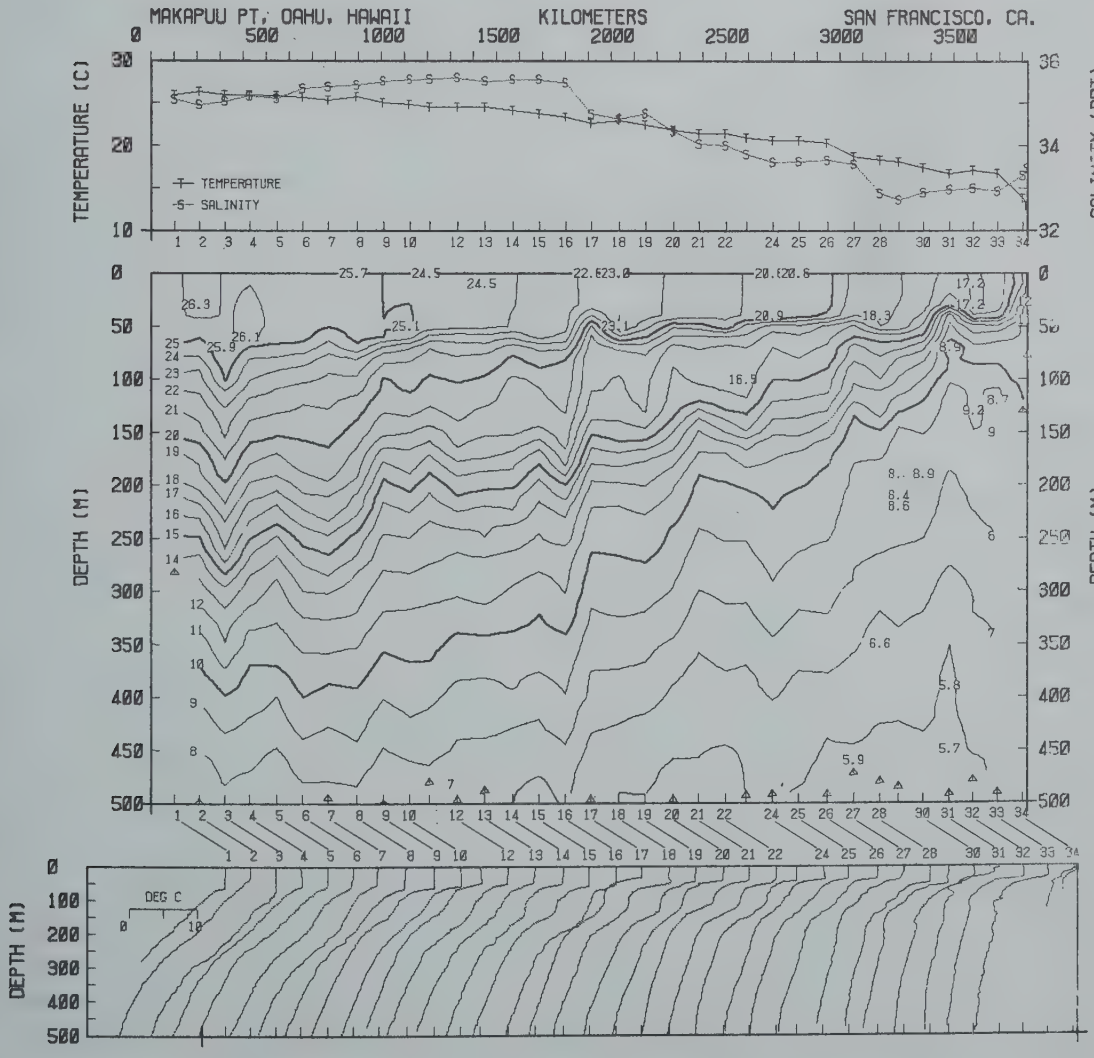
MATSON

MAKAPUU PT, OAHU, HAWAII

- SAN FRANCISCO, CA.

21 OCT 1977 - 27 OCT 1977

NOAA-NMFS PEG MONTEREY, CA.



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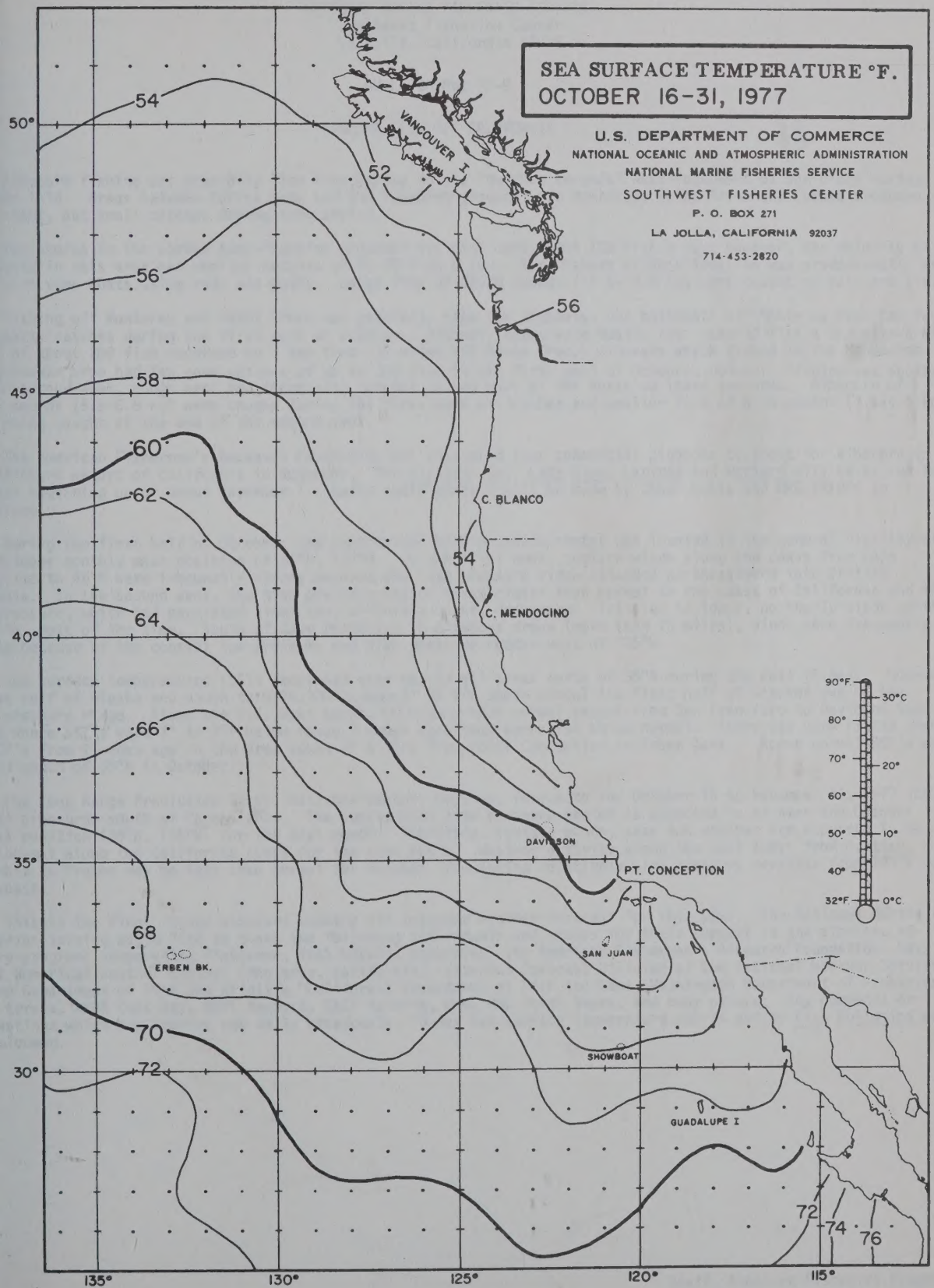

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NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL MARINE FISHERIES SERVICE
Southwest Fisheries Center
La Jolla, California 92038

BULLETIN No. 77-9

FISHING SLOW OFF CALIFORNIA

Albacore fishing was generally slow from Eureka to the "dumping grounds" west-southwest of San Diego during ber 1-16. Areas between Cortez Bank and the "dumping ground," off Monterey, Point Arena and Eureka produced istent, but small catches during this period.

Top scores in the Cortez Bank-"dumping grounds" vicinity were about 100 fish a day; however, the majority of boats in this area had smaller catches of 20-50 fish a day. The fishery at this location was predominantly on with some boats using rods and reels. Large fish of 25-30 pounds (11.4-13.6 kg) were caught on bait and jig.

Fishing off Monterey and Point Arena was generally slow for jigboats; but baitboats off Monterey reported fair spotty catches during the first week of October. Jigboat scores were mostly less than 30 fish a day with a high n of about 200 fish recorded on 1 day from 130 miles off Santa Cruz. Jigboats which fished in the Mendocino e-Eureka area had few good catches of up to 300 fish in the first week of October; however, fishing was spotty. ne second week, rough seas and decreasing catches caused most of the boats to leave the area. Albacore of 5 pounds (5.9-6.8 kg) were caught during the first week of October and smaller fish of 8-10 pounds (3.6-4.5 kg) being caught at the end of the second week.

The American Fishermen's Research Foundation has chartered four commercial jigboats to scout for albacore in offshore waters of California in November. The All Star Sr., Lady Olga, Larinda and Warlord will be at sea for ays beginning on or about November 1. Daily radio contact will be made by these boats and WHG (AFRF) in Diego.

During the first half of October, the subtropical high pressure center was located in the general vicinity of October monthly mean position of 35°N, 137°W. In the first week, surface winds along the coast from Cape ocino to 45°N were frequently strong because the high pressure ridge extended northeastward into British mbia. In the second week, the high pressure center moved closer than normal to the coast of California and the pressure, which had persisted along the California coast, decreased. This led to lower, northerly winds north 0°N, most of the time. South of Cape Mendocino in offshore areas (more than 75 miles), winds were frequently ng because of the coastal low pressure and high pressure center west of 125°W.

Sea surface temperatures (SST) decreased over nearly all areas north of 35°N during the past 15 days. However, he Gulf of Alaska and south to 47°N, SST's were 1° to 2°F above normal the first half of October due to the pressure ridge. Along the U.S. west coast, SST's were near normal except from San Francisco to Davidson Sea- t where SST's were 1° to 2°F below those 2 weeks ago; they were also below normal. There was very little change ST's from 2 weeks ago in the area south of a line from Point Conception to Erben Bank. Above normal SST's pre- ed south of 35°N in October.

The Long Range Prediction Group, National Weather Service, forecasts for October 15 to November 15, 1977 above al pressures south of Cape Blanco. The subtropical high pressure center is expected to be near the October al position (35°N, 135°W) for the next month. Therefore, surface winds, seas and weather are expected to be normal along the California coast for the next month. Weather activity along the west coast from British mbia to Oregon may be less than normal for October if existing relatively high pressure persists from 130°W to coast.

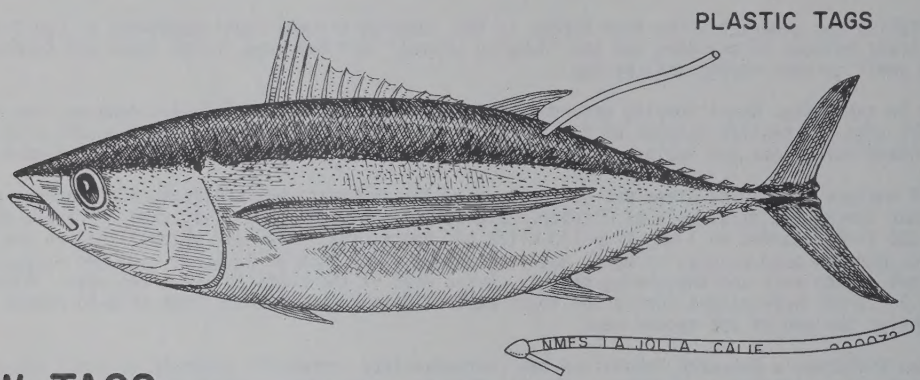
This is the final 15-day albacore summary and extended weather forecast for this year. The National Marine eries Service would like to thank the following individuals and groups for their support in the albacore ad- ry program: cooperating fishermen, fish buyers, canneries, the American Fishermen's Research Foundation, Navy t Numerical Weather Central (Monterey, California), Extended Forecast Division of the National Weather Service, on Department of Fish and Wildlife, California Department of Fish and Game, Washington Department of Fisheries, Eureka, KBBR Coos Bay, KNPT Newport, KAST Astoria, WWD, NMC Point Reyes, and many others. Any comments or estions which may improve our daily broadcasts, 15-day sea-surface temperature charts and/or Fish Bulletins will elcomed.

Staff, Albacore Fisheries Program
R. Michael Laurs, Leader

ber 17, 1977

$ REWARD $

FOR ALBACORE TUNA TAGS



YELLOW TAGS

THE NATIONAL MARINE FISHERIES SERVICE WILL PAY $ 2.00 FOR EACH YELLOW TAG RECOVERED. (NO NEED TO RETURN FISH)

RECORD:

- ▶ WHERE
- ▶ WHEN
- ▶ HOW

} *FISH WAS CAUGHT*

- ▶ LENGTH OF FISH (TIP OF LOWER JAW TO FORK OF TAIL)

FORWARD TO NMFS ADDRESS ON TAG

RED TAGS

THE NATIONAL MARINE FISHERIES SERVICE WILL PAY $ 50.00 FOR EACH RED TAG & FISH RETURNED. (FISH WITH TAG INTACT MUST BE RETURNED)

RECORD:

- ▶ WHERE
- ▶ WHEN
- ▶ HOW

} *FISH WAS CAUGHT*

- ▶ LENGTH OF FISH (TIP OF LOWER JAW TO FORK OF TAIL)

NOTIFY NMFS P.O. BOX 271, LA JOLLA, CA. TEL. (714) 453-2820

THE AMERICAN FISHERMEN'S RESEARCH FOUNDATION WILL AWARD CASH PRIZES FOR YELLOW & RED TAG NUMBERS DRAWN IN AN ANNUAL LOTTERY.